

CLAIMS

What is claimed is:

1. A tire having a casing and a tread, the tread having a plurality of tread elements defined by grooves, the grooves including generally laterally extending grooves and circumferentially extending grooves, the tire comprising:
at least three distinct pitch sizes, S, M, L repeated around the tread and
wherein each pitch has at least one lateral groove extending from a tread shoulder axially inwardly and the at least one lateral groove within a pitch opens into a circumferential groove or the at least one lateral groove within a pitch is blocked from the circumferential groove according to a predetermined sequence of non-uniformity.
2. The tire of claim 1, wherein the predetermined sequence of non-uniformity has the at least one lateral groove within a pitch opens into a circumferential groove in each of two or more pitch sizes and one or more pitch size has at least one lateral groove which is blocked from the circumferential groove.
3. The tire of claim 2, wherein the at least one lateral groove is located adjacent a leading edge and a trailing edge of adjacent tread elements in a shoulder of the tread.
4. The tire of claim 1, wherein the tread has four pitch sizes PS, PM₁, PM₂ and PL.
5. The tire of claim 4, wherein the at least one lateral groove is open to adjacent circumferential groove in each of the pitches of two of the pitch sizes and closed to the adjacent circumferential groove in each of the pitches of the remaining two pitch sizes.
6. The tire of claim 1 wherein the total number of pitches is in the range of 60 to 120.

7. The tire of claim 1 wherein the pitch sizes PS, PM₁, PM₂ and PL have pitch ratios of 7, 8, 9 and 10, respectively, the pitch ratios being the relative size differences between the pitches.
8. The tire of claim 1 wherein the predetermined sequence of non-uniformity has groups of 3 to 12 consecutive pitches having open lateral grooves alternating with groups of 3 to 12 consecutive pitches of closed lateral grooves in a repeating pattern.
9. The tire of claim 1 wherein a plurality of the lateral grooves blocked from a circumferential groove have the blockage applied at a maximum distance from the circumferential groove but within the contact patch.
10. The tire of claim 1 wherein the at least one lateral groove within each pitch having been blocked, is blocked adjacent the circumferential groove.